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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,932	11/12/2001	Johan Willem Gosselink	T0865 US	3905
7590	05/14/2004		EXAMINER	
Richard F Lemuth Shell Oil Company Intellectual Property PO Box 2463 Houston, TX 77252-2463			PARSONS, THOMAS H	
			ART UNIT	PAPER NUMBER
			1745	
DATE MAILED: 05/14/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/030,932

Applicant(s)

GOSSELINK ET AL.

Examiner

Thomas H Parsons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

This is in response to the Amendment filed 3 March 2004.

***Claim Objections***

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 27-30 as presented in the preliminary amendment filed 12 November 2001 have been renumbered 29-32. Accordingly, claims 28-31 as presented in the amended filed 3 March 2004 should have been presented as claims 30-33. Therefore, claims 1-33 are pending in the instant application.

The Examiner apologizes for any confusion caused by the inadvertent oversight in renumbering.

2. Claims 17 and 33 are objected to because of the following informalities:

Claim 17, line 1, suggest changing the dependency of claim 17 to claimed 16; and,

Claim 33, line 4, suggest deleting the second occurrence of "to".

Appropriate correction is required.

### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

**The abstract of the instant specification is approximately 204 words which is outside the range of 50 to 150 words. Accordingly, the abstract should be amended as appropriate.**

4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### *Arrangement of the Specification*

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

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(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

**The Examiner suggests that the instant specification be amended where appropriate to provide section headings.**

***Claim Rejections - 35 USC § 112***

5 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 1:** It is unclear as to what method steps are being set forth in the claim. The recitations "when hydroprocessed product is to be recovered" in lines 12-13, and "if it is not recovered" in lines 15 and 18 render the claim unclear as to whether a hydroprocess product is to be recovered. The terms "when" in line 12, "if" in lines 15 and 18, and "or" in line 17 appear to be optional language and do not positively recite a method step. Claims 2-14, 20-26 and 30-33 are rejected as they are dependent upon claim 1.

**Claim 13** recites the limitation "said catalytic oxidation process" in line 1. There is insufficient antecedent basis for this limitation in the claim.

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**Claim 24:** The recitation “if the latter is not to be recovered” renders the claim unclear as to whether a hydroprocessed product is to be recovered.

**Claim 27:** It is unclear as to what method steps are being set forth in the claim. The recitations “when hydroprocessed product is to be recovered” in lines 9-10, and “if it is not recovered” in lines 9 and 11 render the claim unclear as to whether a hydroprocess product is to be recovered. The terms “when” in line 6, “if” in lines 9 and 11, and “or” in line 10 appear to be optional language and do not positively recite a method step.

In addition, it is unclear as to where step d) occurs in the sequence of method steps. Step d) recites “subjecting part or all non-recovered material from step a) to a watergas shift process...”. No material is recovered from step a), and all material from step a) is subsequently treated in a hydrogen production step. Claims 28 and 29 are rejected as being dependent upon claim 27.

**Claims 29 and 30 (Renumbered claims 31 and 32):** It is unclear as to what claim(s) is being further limited as claim 15 has been canceled.

**Claim 31 (New)(Renumbered claim 33):** It is unclear as to what method steps are being set forth in the claim. The recitations “when hydroprocessed product is to be recovered” in lines 12-13, and “if it is not recovered” in lines 15 and 18 render the claim unclear as to whether a hydroprocess product is to be recovered. The terms “when” in line 12, “if” in lines 15 and 18, and “or” in line 17 appear to be optional language and do not positively recite a method step. Claims 16-19 are rejected as they are dependent upon claim 31.

***Claim Rejections - 35 USC § 103***

7. The rejection of claims 1-13, 15, 18-32 under 35 U.S.C. 103(a) as being unpatentable over Edlund et al. (6,383,670), and further in view of Yamase et al. (5,284,717) has been **withdrawn** in view of Applicants' amendment.
8. The rejection of claim 14 under 35 U.S.C. 103(a) as being unpatentable over Edlund et al., and further in view of Yamase et al. as applied to claim 1 above, and further in view of O'Brien (5,681,540) has been **withdrawn** in view of Applicants' amendment.
9. The rejection of claims 16 and 17 under 35 U.S.C. 103(a) as being unpatentable over Edlund et al., and further in view of Yamase et al as applied to claim 1 above, and further in view of Fukuoka et al. (6,190,430) has been **withdrawn** in view of Applicants' amendment.

***Response to Arguments***

10. Applicant's arguments, see page 7, line 12 through page 8, line 22, filed 3 March 2004, with respect to the rejection(s) of claim(s) 1-32 under **35 USC § 103** have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a different interpretation of a previously applied reference, and newly found prior art.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-7, 10, 18-19, 25, and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamase et al. (5,149,600), and further in view of Day et al. (4,197,187).

**Claim 1:** Because of the indefinite language as addressed above in paragraph 6, the Examiner has interpreted the method as comprising: a) subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst under conditions effective to produce a hydrotreated feedstock comprising a hydroprocessed product, said hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product is produced; c) subjecting all of the hydrotreated feedstock to a treatment to produce hydrogen, recycling at least a part of the hydrogen to step a), and subjecting the hydrogen not used for step a) to a treatment to produce electricity.

Yamase et al. in Figures 1 and 2 disclose a method for producing hydrogen and electricity from a hydrocarbonaceous feedstock, which method comprises a) subjecting the hydrocarbonaceous feedstock (kerosene, LPG or naptha which is the same hydrocarbonaceous feedstock as instantly disclosed) to a treatment (desulfurizer 1 and adsorber 2) with hydrogen in the presence of an unsupported catalyst under conditions effective to produce a hydrotreated feedstock comprising a hydroprocessed product, said hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the



hydroprocessed product is produced; c) subjecting all of the hydrotreated feedstock to a treatment of produce hydrogen (reformer 3), recycling at least a part of the hydrogen to step a)(col. 2: 46-49), and subjecting the hydrogen not used for step a) to a treatment (5) to produce electricity (col. 2: 42-44). (See also col. 1: 38-col. 2: 55).

Yamase et al. do not disclose treatment with hydrogen in the presence of a supported catalyst.

Day et al. disclose treatment with hydrogen in the presence of a supported or unsupported catalyst (col. 1: 14-29 and 41-45 and col. 3: 9-13 and 46-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the unsupported catalyst of Yamase et al. with the supported catalyst of Day et al. because Day et al. teach a supported catalyst that would have provided improved yields of useful products (col. 4:63-68) thereby improving the overall technical, economic ad commercial success of hydrocarbon conversion processes.

As to the recitation "said hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product is produced", because the method of the Yamase et al. combination treats the same feedstock under similar operating conditions, it would obviously have provided the claimed hydrogen.

**Claim 2:** The rejection is as set forth above wherein the feedstock of the Yamase et al. combination would obviously have provided feedstocks ranging from those having an initial boiling point of about ambient to those having a final boiling point of about 650 °C because the feedstocks of the Yamase et al. combination and the step of subjecting the hydrocarbonaceous

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feedstock to a treatment with hydrogen in the presence of a supported catalyst is the same as that instantly disclosed.

**Claim 3:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided feedstocks having a boiling point range such that their 90 % boiling point lies in the range between about 400 °C and about 600 °C because the feedstocks of the Yamase et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst is the same as that instantly disclosed.

**Claim 4:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided feedstocks having a sulphur content of not more than 5 %wt. because the feedstocks of the Yamase et al. combination are the same as that instantly disclosed.

**Claim 5:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided hydrocarbonaceous feedstock containing between 5 % wt and about 40 %wt of material having a boiling point range which is the same as or higher than the boiling point range of the hydroprocessed product to be produced because the feedstocks of the Yamase et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst is the same as that instantly disclosed.

**Claim 6:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided hydrocarbonaceous feedstock containing between 5 % wt and about 40 %wt of material having a boiling point above the final boiling

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point of the hydroprocessed product because the feedstocks of the Yamase et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst is the same as that instantly disclosed.

**Claim 7:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided kerosene and or gas oil as hydroprocessed product(s) from the hydrotreated feedstock because the feedstocks of the Yamase et al. combination and the step of subjecting the hydrocarbonaceous feedstock to a treatment with hydrogen in the presence of a supported catalyst is the same as that instantly disclosed.

**Claim 10:** The rejection is as set forth in claims 1 and 8 wherein Yamase et al. further disclose that hydrogen not used in the hydrotreatment step is used at least partially to produce electricity by feeding it to a fuel cell (5) which is operated to deliver electricity and water (steam) (Figure 1; and col. 1: 42-44).

**Claim 18:** The rejection is as set forth in claim 1 wherein Day et al. further disclose that the treatment with hydrogen is carried out at a temperature between about 100 °C and about 550 °C (col. 3: 49-52).

**Claim 19:** The rejection is as set forth in claim 1 wherein Day et al. further disclose that the treatment with hydrogen is carried out at a pressure of up to 400 atmospheres (col. 3: 59-60 wherein 25 to 1000 psig equates to 2-68 atmospheres).

**Claim 31:** The rejection is as set forth in claim 1 wherein Day et al. further disclose that the treatment with hydrogen is carried out at a temperature between about 100 °C and about 550 °C (col. 3: 49-52).

**Claim 32:** The rejection is as set forth in claim 1 wherein Day et al. further disclose that the treatment with hydrogen is carried out at a pressure of between about 10 and 200 atmospheres (col. 3: 59-60 wherein 25 to 1000 psig equates to 2-68 atmospheres).

**Claim 25:** The rejection is as set forth in claim 1 wherein the feedstock of the Yamase et al. combination would obviously have provided feedstocks having a sulphur content of below 3 % wt. because the feedstocks of the Yamase et al. combination are the same as that instantly disclosed.

**Claim 27:** The rejection of claim 27 is as set forth above in claim 1.

**Claims 28 and 29:** The rejection is as set forth in claim 1 wherein Yamase et al. in Figure 1 disclose that hydrogen is produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the water-shift step (4), that carbon dioxide is produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the water-shift step, and that electricity is produced from no feedstocks other than the hydrocarbonaceous feedstock and water used in the water-shift step (col. 1: 13-49).

**Claim 30:** The rejection is as set forth above in claim 1 wherein Yamase et al. further disclose using a catalyst system which is the same as that instantly disclosed, and therefore would obviously have been capable of converting at least about 65 %wt per pass of the material.

**Claim 33:** Because of the indefinite language as addressed above in paragraph 6, the Examiner has interpreted the method as comprising: a) exposing the hydrocarbonaceous feedstock to hydrogen in the presence of a supported catalyst under conditions effective to produce a hydrotreated feedstock comprising a hydroprocessed product, said hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point

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range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product is produced; c) subjecting all of the hydrotreated feedstock to a treatment of produce hydrogen, recycling at least a part of the hydrogen to step a), and subjecting the hydrogen not used for step a) to a treatment to produce electricity.

Yamase et al. in Figures 1 and 2 disclose a method for producing hydrogen and electricity from a hydrocarbonaceous feedstock, which method comprises a) subjecting the hydrocarbonaceous feedstock (kerosene, LPG or naptha which is the same hydrocarbonaceous feedstock as instantly disclosed) to a treatment (desulfurizer 1 and adsorber 2) with hydrogen in the presence of an unsupported catalyst under conditions effective to produce a hydrotreated feedstock comprising a hydroprocessed product, said hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product is produced; c) subjecting all of the hydrotreated feedstock to a treatment of produce hydrogen (reformer 3), recycling at least a part of the hydrogen to step a)(col. 2: 46-49), and subjecting the hydrogen not used for step a) to a treatment (5) to produce electricity (col. 2: 42-44). (See col. 1: 38-col. 2: 55).

Yamase et al. do not disclose treatment with hydrogen in the presence of a supported catalyst.

Day et al. disclose treatment with hydrogen in the presence of a supported or unsupported catalyst (col. 1: 14-29 and 41-45 and col. 3: 9-13 and 46-68).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the unsupported catalyst of Yamase et al. with the

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supported catalyst of Day et al. because Day et al. teach a supported catalyst that would have provided improved yields of useful products (col. 4:63-68) thereby improving the overall technical, economic and commercial success of hydrocarbon conversion processes.

As to the recitation "hydrogen being produced at least partly from a fraction of the hydrotreated feedstock having a boiling point range different from the boiling point range of the fraction of the hydrocarbonaceous feedstock from which the hydroprocessed product is produced", because the method of the Yamase et al. combination treats the same feedstock under similar operating conditions, it would obviously have provided the claimed hydrogen.

As to the recitation "the supported catalyst and the conditions being effective to convert to the hydroprocessed product at least about 50wt% per pass of a fraction of the hydrocarbonaceous feedstock having a boiling point range the same as or higher than the boiling point range of the hydroprocessed product", because the method of the Yamase et al. combination treats the same feedstock under similar operating conditions, it would obviously have provided the claimed conversion.

13. Claims 8, 9, 12-14, 21-23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamase et al., and further in view of Day et al. as applied to claims 1 and 27 above, and further in view of Hwang et al. (4,522,894).

Yamase et al. and Day et al. are as applied, argued, and disclosed above, and incorporated herein.

**Claims 8 and 9:** The Yamase et al. combination discloses subjecting all of the non-recovered material from treatment with hydrogen to a (reforming) process that produces

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hydrogen and carbon (di) oxide but does not disclose a catalytic oxidation process or that the catalytic oxidation process comprises a catalytic partial oxidation process.

Hwang et al. in Figure 2 disclose a known catalytic partial oxidation process (autothermal reformer 32) that produces hydrogen and carbon (di) oxide (col. 6: 20-25; and, col. 17: 60-col. 18: 15)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Yamase et al. combination by substituting reforming with the reforming of Hwang et al. because Hwang et al. teach a catalytic oxidation process that would have provided a hydrogen-rich feed for fuel cells at increased yields thereby improving the overall efficiency of fuel cells to produce electricity and providing economic advantages.

**Claim 12:** The rejection is as set forth in claims 1, 8 and 10 wherein Yamase et al. in Figures 1 and 2 disclose that at least part of the steam needed in the hydrogen manufacturing unit is provided by the fuels cell.

**Claims 13 and 26:** As best understood by the Examiner, claim 13 is dependent upon claim 8.

The rejection is as set forth in claim 1 and 8 wherein Hwang et al. in Figure 2 further disclose that the catalytic oxidation process comprises a watergas shift process (col. 18: 16-51), and in which kerosene is produced from no feedstocks other than the hydrocarbon feedstock and water used in the watergas-shift step (See Yamase et al., Figures 1 and 2; col. 2: 13-14).

**Claim 14:** The Yamase et al. combination does not disclose converting hydrogen sulphide into elemental sulfur by conventional means. Hwang et al. disclose any suitable device

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for removing or reducing sulfur or sulfur compounds (col. 18: 38-44) which would obviously have encompassed methods for converting hydrogen sulphide into elemental sulfur by conventional means.

Therefore, it would it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Yamase et al. combination by incorporating the sulfur removal step of Hwang et al. for reasons as set forth above in claim 8.

**Claim 21:** The rejection is as set forth in claims 1, 8, and 9 wherein the Yamase et al. combination would obviously have generated the internal needs on hydrogen and electricity for the process as the catalytic partial oxidation step and the fuel cell are operated the same as instantly disclosed.

**Claim 22:** The rejection is as set forth in claims 1, 8, and 9 wherein the Yamase et al. combination would obviously have produced a hydrogen generated by the catalytic partial oxidation step from hydrocarbons containing at most 4 carbon atoms present in the hydrocarbonaceous feedstock as the feedstock and the manner in which the catalytic partial oxidation step is operated is the same as that instantly disclosed.

**Claim 23:** The rejection is as set forth in claims 1, 8, and 9 wherein the Yamase et al. combination would obviously have provided hydrocarbons having about 4 or less carbon atoms as the feedstock for the catalytic partial oxidation step as the feedstock is the same as that instantly disclosed.



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14. Claims 11, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamase et al., and further in view of Day et al. as applied to claim 1, 8 and 10 above, and further in view of Edlund et al. (6,383,670).

Yamase et al. and Day et al. are as applied, argued, and disclosed above, and incorporated herein.

**Claim 11:** The Yamase et al. combination discloses a method of producing hydrogen wherein portions of the hydrogen are recycled back to the utilities (i.e. desulfurizer and reformer) of the process, and a portion is sent to a fuel cell to produce electricity (col. 1: 42-49). The Yamase et al. combination does not disclose that electricity in excess of that need by the utilities of the process is produced from excess hydrogen.

Edlund et al. in Figure 8 discloses a method comprising a hydrogen production step wherein hydrogen may be distributed to two or more output streams (e.g., one stream to a fuel cell, one stream to the utilities (i.e. combustor 60) of the process, and one stream to storage 52 or device 22). (See col. 4: 42-53 and col. 9: 26)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Yamase et al. combination by incorporating a step of producing electricity in excess of that need by the utilities of the process from excess hydrogen as taught by Edlund et al. because Edlund et al. teaches a fuel processor adapted to deliver two or more output streams to a suitable destination and/or storage device thereby improving the overall efficiency, utility, and flexibility of the fuel processing system.

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**Claim 20:** The rejection is as set forth above in claim 11 wherein the Edlund et al. in Figure 1 further discloses that the fuel cell (14) is operated to produce excess electricity (col. 2: 31-40).

Edlund et al. on col. 2 :31-40 discloses that the fuel cell produces an electric current that is supplied to an associated electric device 22, and that 22 is meant to represent one or more devices adapted to receive current. To provide current to more than one device would obviously have required that the fuel cell produce excess electricity.

**Claim 24:** The Yamase et al. combination does not disclose that the hydrogen is separated off from the hydrotreated feedstock prior to the hydrogen manufacturing step. However, Edlund et al. teaches a control system that can be adapted to automate the operation of fuel processing and the entire fuel processing system (pumps, valves, communication pathways other than those shown in Figure 2, and that the controller may communicate with regions other than those shown (col. 2: 57- col. 3: 20; col. 3: 34-48; and col. 4: 66-col. 5: 11).

Therefore, in light of the teaching of Edlund et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to adapt the method of the Yamase et al. combination to provide for separating hydrogen off from the hydrotreated feedstock prior to the hydrogen manufacturing for reasons as set forth above in claim 11.

15. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamase et al., and further in view of Day et al as applied to claim 33 above, and further in view of EP 0214717.

As best understood by the Examiner, claims 16 and 17 are dependent upon claim 33.

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Edlund et al. and Yamase et al. are as applied, argued, and disclosed above, and incorporated herein.

The Yamase et al. combination does not disclose a catalyst containing zeolite beta as active component wherein the catalyst is capable of converting at least 90 %wt per pass of the fraction to be treated.

EP 0214717 disclose a catalyst containing zeolite beta as active component in the treatment with hydrogen.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Yamase et al. combination by substituting the zeolite catalyst with the catalyst of EP 0214717 because both are concerned with hydrocarbon treatment with hydrogen in the presence of a catalyst, and EP 0214717 teaches a zeolite beta that would have provided a significant distillate selectivity, removed paraffinic components so that a dewaxing effect is achieved simultaneously with bulk conversion, and maintained hydrocracking activity over long cycles thereby improving product quality while decreasing hydrogen consumption, and improving the overall efficiency of the method.

As to the recitation "catalyst capable of converting at least 90 %wt per pass of the fraction to be treated", because the catalyst disclosed by EP 0214717 is the same as that instantly claimed, it would obviously have provided the claimed conversion capability.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (571) 272-1290.

The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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